What Is Claimed Is:

1. A method for producing single microlenses or an array of microlenses composed of a glass-type material, in which method a first substrate is provided with a surface containing impressions over which a second substrate composed of a glass-type material is placed at least partially overlapping it and is joined therewith under vacuum conditions, and in which method the substrate composite is tempered in such a manner that the second substrate softens and flows into the impressions of the first substrate, thereby structuring the side of the second substrate facing away from the first substrate in order to form at least one microlens surface, **wherein** for forming the at least one microlens surface, the softened glass-type material of the second substrate flows into at least two impressions of the first substrate, the shape, size and arrangements of the two impression determining the curvature of the forming microlens surface.

2. A method according to claim 1,
wherein a first substrate is provided containing a first impression into which said softened glass-type material flows during the tempering process to form a concave surface contour at the microlens surface opposite the first substrate and **wherein** provided beside the first impression and separated by an intermediate fillet is a second impression into which a amount, which is determinable, of the softened glass-type material flows determined by the shape, size and arrangement of the second impression to form a prescribed curvature of the microlens surface in at least a subdomain of the concave surface contour.

3. A method according to claim 1,
wherein a first substrate is provided which, containing at least two impressions separated by an intermediate fillet area over which a convex surface contour forms at the microlens surface opposite the first substrate due to the lateral flowing off of the softened material into the at least two impressions during the tempering process.

4. A method for producing single microlenses or an array of microlenses composed of a glass-type material, in which method a first substrate is provided with a surface containing impressions over which a second substrate composed of a glass-type material is placed at least partially overlapping it and is joined therewith, with a gaseous medium being enclosed in the impressions between the first and said second substrate and in which method the substrate composite is tempered in such a manner that the second substrate softens and is displaced by the gaseous medium expanding in the area of the impressions thereby structuring the side of the second substrate facing away from the first substrate to form at least one convex microlens surface,
wherein a first substrate is provided having a first impression which encloses with the second substrate a first cavity with the second substrate in which the gaseous medium is enclosed which expands during tempering and displaces the softened glass-type material to form a convex surface contour on the microlens surface lying opposite the first substrate, and
wherein on the first substrate at least one second impression is provided separated by an intermediate fillet next to the first impression, the at least one second impression enclosing with the second substrate a second cavity in which the gaseous medium is enclosed which expands during tempering and displaces the softened glass-type material to form a curvature, which can be prescribed, of the microlens surface at least in a subdomain of the convex surface contour.

5. A method according to claim 4,
wherein joining the second substrate with the first substrate occurs under normal or high pressure conditions.

6. A method according to one of the claims 1 to 5,
wherein after tempering and cooling of the glass-type substrate, the second substrate is separated from the first substrate.

7. A method according to one of the claims 1 to 6,
wherein separation of the second substrate from the first substrate occurs by means of etching away the first substrate.

8. A method according to one of the claims 1 to 6, **wherein** separation of the second substrate from the first substrate occurs by providing a separation layer between the first substrate and the second substrate, the separation layer being applied in the form of a sacrificial layer on the structured surface in a structure retaining manner before joining the two substrates, the sacrificial layer being destroyed by means of thermal and/or chemical action and permitting separation of the two substrates.

9. A method according to one of the claims 1 to 8, **wherein** a metal layer is placed between the first and the second substrate.

10. A method according to claim 9, **wherein** said metal layer is utilized as a separation layer which has a melting point below the melting points of the substrates.

11. A method according to one of the claims 1 to 10, **wherein** the structured surface of the first substrate is provided with impressions having structure widths B and the second substrate having a thickness D and **wherein** the following applies approximately:

$$B < 0.5*D$$

12. A method according to one of the claims 1 to 11, **wherein** the first substrate is a semiconductor substrate and/**or**
wherein the glass-type material is a borosilicate glass.

13. A method according to claim 12, **wherein** the semiconductor substrate is a silicon substrate and/**or**
wherein the borosilicate glass is Pyrex® glass or Borofloat glass®.

14. A method according to one of the claims 1 to 11, **wherein** the first substrate is a semiconductor substrate and/**or**
wherein the glass-type material is a polymer-based plastic material.

15. A method according to one of the claims 1 to 14, **wherein** joining of the first substrate with the second substrate composed of a glass-type material occurs by means of anodic bonding or by means of a gluing method.

16. A method according to one of the claims 1 to 15, **wherein** the tempering process is conducted by means of controlling the temperature and the duration to obtain a certain curvature of the forming microlens surface.

17. A method according to one of the claims 1 to 16, **wherein** after the tempering process or after the etching away of the first substrate, a surface of the glass substrate is planed by means of grinding and/or polishing.

18. A method according to one of the claims 1 to 17, **wherein** before the tempering process, a third substrate is placed on the side of the second substrate facing away from said first substrate, and
wherein the third substrate is provided with at least one impression or at least one opening having a delimiting contour, which delimits the peripheral contour of the forming microlens.

19. A method according to claim 18, **wherein** the third substrate is a semiconductor substrate, preferably in the form of a silicon substrate.

20. A method according to claim 18 or 19, **wherein** after the tempering process, the third substrate is removed by means of an etching process.

21. A method according to claim 20, **wherein** between the third and the second substrate measures according to one of the claims 7 to 11 are carried out.

22. **Use** of the microlenses or the array of microlenses producible according to the method according to one of the claims 1 to 21 as original molds or master molds for producing replication molds.

23. **Use** according to claim 22,
wherein the microlenses or the array of microlenses composed of the glass-type material is/are used to mold the microlens surface in a substrate, preferably in a polymer substrate.